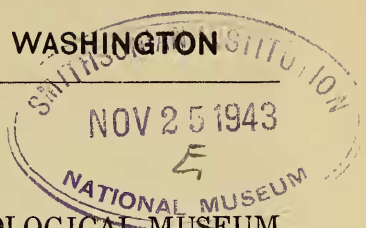


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PROCEEDINGS  
OF THE  
BIOLOGICAL SOCIETY OF WASHINGTON



NOTES ON FISHES IN THE ZOOLOGICAL MUSEUM  
OF STANFORD UNIVERSITY.

XI. TWO NEW GENERA AND SPECIES.  
WITH KEY TO THE GENERA OF GOBIES  
WITH VOMERINE TEETH.

BY ALBERT W. C. T. HERRE.

Of the many remarkable gobies of the Indo-Pacific, those with vomerine teeth are among the most peculiar. For many years the only one known was a small goby from Samoa. Since then I have discovered ten more species, seven in the Philippines, one in the Pelew Islands, and two at Singapore. All share the extraordinary character of having two incisor-like teeth on the vomer; they are always large, and may be relatively enormous in size. They are side by side, across the vomer, and some species have them fused to form a single gigantic chisel.

These teeth are not always easy to make out, and have been overlooked no doubt by students of fishes. It is highly probable that a number of additional species of gobies with vomerine teeth will be discovered when further collecting is done, and when all the species of Indo-Pacific gobies already known are critically examined. In spite of the large number of new species of gobies added to the Indo-Pacific fauna during the past twenty years, particularly in the Philippines, I feel that we have only made a beginning at the study of this great family. Intensive collecting almost anywhere in the East Indian region will reveal many new and astonishing gobies.

**INTONSAGOBIUS** Herre, new genus.

From related forms this genus is separated by the presence of two broad incisors on the vomer. Dorsal VI-I-9 or 10; anal I-7 or 8; scales 24-30 in longitudinal, 9 in transverse series; predorsal region scaled to eyes, head otherwise naked; isthmus and pectoral base scaled; scales

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ctenoid except on belly and before a vertical from the first dorsal origin. Head broad, form thickset; mouth small, terminal, slightly oblique; outer row of teeth enlarged, followed by a band of 4 rows of minute teeth in the upper jaw and 5 rows in the lower jaw. Tip of tongue free, rounded. The entire head is marked by many well-developed transverse and longitudinal fringed ridges, bearing conspicuous rows of sensory papillae; vertical rows of sensory papillae on anterior part of body and at least on the central row of lateral scales to the caudal base. Anterior nostril a long tubule. Dorsals well separated, the vertical fins equal to or greater than the depth; no modified silky rays on pectoral, which equals the rounded caudal; both pectoral and caudal more or less equal to the head; ventrals reaching the anus, with well-developed frenum, their rays fringed much as in *Eviota*; gill opening little wider than the pectoral base, not extended forward, isthmus broad. Genital papilla prominent.

Near to *Callogobius* and *McGregorella*, and distantly related to *Mars*.

Type *Intonsagobius kuder* Herre, new species, from a coral reef a few miles west of the city of Jolo, Sulu Province, Philippine Islands.

*Intonsa*, unshorn or unshaven.

#### KEY TO THE GENERA OF GOBIES WITH VOMERINE TEETH.

- A. Scales ctenoid, about 26.  
 B. Scales covering head and body; no prominent ridges or rows of sensory papillae on head.....*MACRODONTOGOBIOUS*  
 One species from the Pelew Islands.  
 BB. Head naked, with numerous transverse and longitudinal ridges with sensory papillae; median lateral scales with vertical rows of sensory papillae.....*INTONSAGOBIOUS*  
 One species from Jolo, Philippine Islands.  
 AA. Scales 40 or more, ctenoid or cycloid.  
 C. Scales more or less ctenoid, at least on posterior half.  
 D. Scales 40-50, ctenoid, or more or less cycloid on anterior half; naked before first dorsal; mouth nearly vertical, chin prominent; cheeks without conspicuous lines of sensory papillae.....  
*MANGARINUS*  
 One species from Mindoro, P. I.  
 DD. Scales 60-65, all ctenoid or at least those on posterior half; mouth moderately oblique, the jaws equal or nearly so; sides and top of head with many conspicuous lines of sensory papillae  
*MARS*  
 Three species known, one from Samoa and two from the Philippines.  
 CC. Scales cycloid, over 50.  
 E. Maxillary extended far back on preopercle, the lower jaw projecting; scales about 60; head, predorsal region, a strip back to second dorsal, and area below a diagonal from anus to pectoral axil all naked.....*MYERSINA*  
 One species, from Culion, P. I.

EE. Maxillary not prolonged backward, mouth ordinary, moderately oblique, the jaws equal; scales 70-85; naked back to dorsal origin and ventral base; upper lip lined with a dense papillate fringe.....SMILOGOBIUS  
Four species, two from the Philippines and two from Singapore.

*Intonsagobius kuderi* Herre, new species.

Dorsal VI-I-9; anal I-7; scales in a longitudinal series 25-27, but usually 26; transverse series 9; predorsal scales 6.

The depth is 4 to 4.3, the head about 3 (2.9-3.18), the caudal 2.8 times in the length. The body is low, plump and thickset, the upper profile moderately arched, the lower outline nearly horizontal, the wedge-shaped head a little broader than deep, its width 1.3 to 1.4 times in its own length. The latero-dorsal eyes are very high up, projecting above the profile, 3.6 to 3.9 times in the head, close together, the width of the interorbital 2.3 to 2.6 in the eye; the broad snout is a little longer than the eye, 3.3 to 3.4 in the head. The mouth is small, with thick lips, the posterior angle of the maxillary concealed but scarcely reaching a vertical from the front margin of the eye; the teeth are as given for the genus. There are 3 or 4 vertical and 2 transverse ridges on the cheek, a vertical and 2 transverse or diagonal opercular ridges, and other short ridges on the sides and top of the snout and behind the eyes; on the sides of the nape and under side of the head, and on the median row of scales back to the caudal base are rows of sensory papillae. A row of pores about the upper half of the eye, including two conspicuous ones in the interorbital space, and additional pores in the supra-opercular groove and on the hind margin of the preopercle. The scales as given for the genus.

The second dorsal spine is elongate, its threadlike tip reaching to the middle of the second dorsal fin when depressed, or to the base of the first ray of the second dorsal in females, 3.45 to 3.7 times in the length. The second dorsal is highest in the posterior half, reaching the caudal base when depressed, equal to or slightly more than the depth, 4.4 to 4.5 in the length; the anal rays are longest posteriorly, reaching or exceeding the caudal base, 3.1 to 3.6 in the length. The pectoral is 2.9 to 3, the ventrals 3.9 to 4.3 times in the length. The least depth of the caudal peduncle is 2.2 to 2.4 times in the head and 1.66 to 1.9 times in its own length. The genital papilla is very slender, long and pointed in males, broader, thicker, with a slightly notched tip in females.

The color in alcohol is uniform brown, with 3 or 4 obscure broad transverse bands of darker brown, the under side of the head paler. The dorsals, pectorals, and caudal are cross-banded by brown or blackish brown and whitish; the anal is dusky or with faint whitish crossbars; the ventrals are dusky, or may be marginally pale.

Described from the type, a male 35 mm. long, and 3 paratypes, another male 31 mm. long and two females, 34 and 28 mm. in length. A juvenile specimen is 18 mm. long. Collected from coral in a lagoon amid a group of small isles about 8 miles west of Jolo, Sulu Province, Philippine Islands.

Named in honor of Division Superintendent of Schools Kuder, whose generous cooperation made possible my visit to the islands about Jolo harbor.

**MANGARINUS** Herre, new genus.

Dorsal VI-I-11; anal I-10; scales ctenoid or only those on hind half ctenoid, 40 to 50 in longitudinal series; scales on posterior third much larger than anteriorly; head and body more or less naked back to a vertical from the first dorsal to the ventral; mouth very oblique, nearly vertical, chin prominent; teeth in 6 rows, those of the outer row enlarged, those of the innermost row nearly as large; a pair of anterior recurved canines above, and a pair of larger hooked canines below; two large flat incisor-like teeth on the vomer; the tongue is free, its tip rounded. Dorsals close together, pectoral and ventrals elongate, the caudal pointed, longer than head. The gill openings are little wider than the pectoral base, not extended forward, the isthmus rather broad. Branchiostegals 5.

Type of the genus *Mangarinus waterousi* Herre, new species.

*Mangarinus*, from Mangarin, Mindoro, P. I.

**Mangarinus waterousi** Herre, new species.

Dorsal VI-I-11; anal I-10; scales 44 to 48 in a longitudinal, 20-22 in a transverse series, ctenoid, or only those on the posterior half ctenoid, the scales on the hind third larger than the rest.

The body is low, elongate, the dorsal and ventral profiles nearly horizontal and parallel, the head slightly depressed, its breadth equal to its depth. The greatest depth is at the dorsal origin, about 7, the head 4 times in the length. The central rays of the broad caudal become elongated, the fin then longer than the head, 3 times in the length. The eyes are small, equal to the snout, 6 to 6.6 times in the head; the interorbital is 1.5 times in the eye. The anterior nostril is in a flaccid tubule protruding over the edge of the snout; the posterior nostril is a large open pit just before the eye; above and behind it is a large open pore; a conspicuous pore in the centre of the interorbital space and another at its posterior margin; a pore behind the middle of the eye and a row of pores along the groove above the preopercle and opercle. The teeth are as already given for the genus. A row of minute sensory papillae from the region of the anterior nostril downward and then backward across the middle of the cheek, and another one from the angle of the mouth; two short rows of similar papillae on the opercle.

The low dorsals are close together; the tips of the first dorsal spines are more or less filiform, the longest equal to the depth of the caudal peduncle, 2.66 times in the head; the second dorsal and anal are highest posteriorly, extending to or upon the caudal base when depressed, the longest rays 1.6 times in the head or a trifle more than the depth. The pectoral is 4.25, the ventral 4.5 to 4.9 times in the length, both fins with pointed tips. The anal papilla is thin, rather flat, pointed, and inconspicuous.

The color in alcohol is uniform brown, the sides of the head mottled with darker brown; paler on the belly and under side of the head; the vertical fins are black; the caudal is clear, with numerous crossbars of brown spots; the pectorals and ventrals are clear, or may be sprinkled basally with dusky dots.

Described from the type, 33.5 mm. long, and 3 paratypes 32 to 33 mm. in length, collected in a mangrove swamp at Hacienda Waterous, Mangarin, Mindoro.

Named for my esteemed friend, army officer, and eminent physician, Dr. W. H. Waterous, who placed the resources of Hacienda Waterous at Mangarin, at my disposal.